

EXHIBIT 27

HIGHLY CONFIDENTIAL - ATTORNEYS EYES ONLY

UNITED STATES DISTRICT COURT
 NORTHERN DISTRICT OF CALIFORNIA
 SAN FRANCISCO DIVISION

ASETEK DANMARK A/S,

Plaintiff and
 Counterdefendant,

vs.

No. 3:19-CV-00410-EMC

COOLIT SYSTEMS INC.,

Defendant and
 Counterclaimant.

COOLIT SYSTEMS USA INC.,
 COOLIT SYSTEMS ASIA PACIFIC
 LIMITED, COOLIT SYSTEMS
 (SHENZHEN) CO., LTD.

Defendants,

CORSAIR GAMING, INC., and
 CORSAIR MEMORY, INC.

Defendants.

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VIDEOTAPED REMOTE DEPOSITION OF

DAVID B. TUCKERMAN, Ph.D.

Lake Stevens, Washington

Thursday, December 30, 2021

Volume I, Pages 1 - 275

Reported by: CATHERINE A. RYAN, RMR, CRR,
 CSR No. 8239

Job No. 4997333

Page 1

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Videotaped remote deposition of DAVID B.
TUCKERMAN, Ph.D., Volume I, taken on behalf of
Defendant and Counterclaimant, by way of
video-telecommunication with the Witness appearing
in Lake Stevens, Washington, beginning at 9:04 a.m.
and ending at 7:12 p.m., on Thursday, December 30,
2021, before CATHERINE A. RYAN, Certified Shorthand
Reporter No. 8239.

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INDEX

WITNESS EXAMINATION

DAVID B. TUCKERMAN, Ph.D.

Volume I

BY MR. R. CHEN 8

BY MS. BHATTACHARYYA 246

BY MR. R. CHEN 261

EXHIBITS

NUMBER DESCRIPTION PAGES

Exhibit 289 Drawing; 1 page 74

Exhibit 290 "Deposition of Donald E. Tilton,
Ph.D., December 19, 2020, Asetek
Danmark A/S vs. CoolIT Systems, Inc.;
177 pages 106

Exhibit 291 "EXPERT REPORT OF DR. DAVID B.
TUCKERMAN REGARDING INFRINGEMENT OF
U.S. PATENT NOS. 8,240,362;
10,613,601; AND 10,599,196"; 174 pages 138

Exhibit 291A "Exhibit A to Dr. David Tuckerman's
Infringement Report"; 3 pages 138

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Page 4

1	EXHIBITS (Continued)		
2	NUMBER	DESCRIPTION	PAGES
3	Exhibit 291B	"Exhibit B to Dr. David Tuckerman's	138
4		Infringement Report"; 13 pages	
5			
6	Exhibit 291C	"Exhibit C to Dr. David Tuckerman's	138
7		Infringement Report"; 19 pages	
8			
9	Exhibit 292	"EXHIBIT B"; 7 pages	175
10			
11	Exhibit 293	"JOINT STATEMENT REGARDING COLLATERAL	179
12		ESTOPPEL AND JUDICIAL ESTOPPEL	
13		DEFENSES"; 48 pages	
14			
15	Exhibit 294	"REBUTTAL REPORT OF DR. JOHN P.	198
16		ABRAHAM REGARDING INFRINGEMENT OF	
17		ASETEK DANMARK A/S'S ASSERTED PATENT	
18		CLAIMS"; 243 pages	
19			
20	Exhibit 295	"EXHIBIT A"; 18 pages	218
21			
22	Exhibit 296	"EXHIBIT C"; 30 pages	220
23			
24			
25	//		

PREVIOUSLY MARKED EXHIBITS

NUMBER	DESCRIPTION	PAGES
Exhibit 163	"U.S. PATENT: 8,240,362, ISSUE DATE: August 14, 2012"; Bates ASE-CLT00008003 - ASE-CLT00008029	57
Exhibit 78	"Laid-open Patent 2003-0031027"; Bates COOLIT0004768 - COOLIT0004785	59
Exhibit 168	"U.S. PATENT: 10,599,196, ISSUE DATE: March 24, 2020"; Bates ASE-CLT00047334 - ASE-CLT00047369	75
Exhibit 175	"United States Patent, Lyon, Patent No.: US 10,274,266 B2, Date of Patent: Apr. 30, 2019"; Bates COOLIT0004352 - COOLIT0004378	80
Exhibit 167	"U.S. PATENT: 10,613,601, ISSUE DATE: April 07, 2020"; Bates ASE-CLT00048067 - ASE-CLT00048090	244

1 Lake Stevens, Washington; Thursday, December 30, 2021

2 9:04 a.m.

3
4 THE VIDEOGRAPHER: Good morning. We are
5 going on the record at 9:04 a.m. on December 30th, 09:04:32
6 2021.

7 This is Media Unit 1 of the video-recorded
8 deposition of Dr. David Tuckerman, taken by counsel
9 in the matter of Asetek Danmark A/S versus CoolIT
10 Systems, Incorporated, and all related 09:04:50
11 cross-actions, filed in the United States District
12 Court for the Northern District of California, case
13 No. 319-CV-00410-EMC.

14 This deposition is being held by Veritext
15 Virtual via Zoom web conferencing. 09:05:09

16 My name is Soseh Kevorkian, from the firm
17 Veritext, and I'm the videographer. Our court
18 reporter is Catherine Ryan, also from the firm
19 Veritext.

20 At this time, would counsel and all 09:05:21
21 present please identify themselves for the record.

22 MR. R. CHEN: Yes. This is Reuben -- oh,
23 go ahead, Arpita.

24 MS. BHATTACHARYYA: This is Arpita
25 Bhattacharyya from Finnegan for Plaintiff Asetek 09:05:31

Page 7

1 Danmark A/S. 09:05:37

2 MR. R. CHEN: This is Reuben Chen from
3 Cooley LLP for CoolIT and Corsair, and with me is my
4 co-counsels, Kyle Chen and Ken Dyer.

5 THE VIDEOGRAPHER: Okay. Thank you. 09:05:54

6 Is that -- I think that's it or --

7 THE WITNESS: Do I have -- should I
8 introduce myself, or does that come later?

9 MR. R. CHEN: Well, Doctor, we're going to
10 swear you in in just a minute. Thank you. 09:06:06

11 THE VIDEOGRAPHER: Catherine, whenever
12 you're ready.

13

14 DAVID B. TUCKERMAN, Ph.D.,
15 having been administered an oath, was examined and 09:06:25
16 testified as follows:

17

18 EXAMINATION

19 BY MR. R. CHEN:

20 Q Good morning, Dr. Tuckerman. 09:06:27

21 A Good morning.

22 Q Now, I know this is your third deposition
23 in this case, but, for the record, could you please
24 state your name.

25 A David Bazeley -- middle name 09:06:38

Page 8

1 simulation. You certainly wouldn't spend the money 10:14:35
2 and tool things for something that, you know,
3 someone might have made a goof, you know, or not
4 simulated it properly.

5 MR. R. CHEN: All right. Well, I think 10:14:47
6 we've been going for over an hour, so,
7 Dr. Tuckerman, would you like to take like a
8 ten-minute break, or would you like to keep going?

9 THE WITNESS: Well, I'd just assume -- I
10 mean, unless people want to take a break, I'm 10:15:04
11 actually okay continuing for -- for a bit. This is
12 kind of a funny day where it's -- I've got eight
13 inches of snow outside. It's hard for me to go
14 outside, and, you know, I do have another deposition
15 tomorrow. So I don't want it to drag on too late 10:15:19
16 tonight, so, you know --

17 MR. R. CHEN: I'll try to be efficient,
18 yeah. So why don't we continue, then, if there are
19 no objections to that.

20 THE WITNESS: Yeah. 10:15:32

21 MR. R. CHEN: Okay. Great. All right.

22 Q As to their shapes, would you agree that a
23 curved blade has a different shape than a straight
24 blade?

25 MS. BHATTACHARYYA: Objection. Vague. 10:15:46

1 THE WITNESS: Well, "curved" and 10:15:54
2 "straight" certainly mean different things, for --
3 for sure.

4 BY MR. R. CHEN:

5 Q What is your definition of curved blades? 10:16:09

6 A A -- okay. A definition of curved blade.

7 A blade that has an -- an arc to it. It's not --

8 it's not everywhere linear.

9 Q What is your definition of radial blades?

10 A So if I'm -- if I'm looking down on the -- 10:17:11

11 on the impeller and -- you know, so straight down

12 looking down along the axis of rotation, okay, the

13 blade -- repeat the question, by the way, just to

14 make sure I'm --

15 Q Again, what is your definition of radial 10:17:47

16 blades?

17 A Right. Okay. So as I'm looking down on

18 the axis of rotation, I've got -- the impeller is

19 generally mounted on, like, a circular disk or

20 whatever, and the blade that I'm looking -- the 10:18:09

21 blades that I'm looking at would need to be along

22 the -- the radius of that -- the radius of that

23 circle. So they -- they don't have to go all the

24 way to the center. In fact, they can't because

25 normally that's where your inlet is, and they don't 10:18:31

1 actually always have to go to the edge because 10:18:36
2 you've got to have some clearance, but they have to
3 be along the radius. They have to be coincident
4 with radial lines drawn from the center going
5 outward, and that's the best way I can describe it. 10:18:50

6 Q Okay. Okay. I think I understand what
7 you're saying. So I think you're saying that radial
8 blades have to intersect at the center of rotation.

9 Is that correct or not quite accurate?

10 A No, that's not what I said. 10:19:13

11 Q Okay.

12 A I said that the blade needs to -- whatever
13 portion of blade there is needs to be aligned over a
14 radial -- over a radius. So if I draw -- if I draw
15 a radius line, you know, geometric radius from the 10:19:46
16 center going outward from the center, then the --
17 wherever the blade is needs to be coincident with --
18 with that radius, but I didn't say anything about it
19 going all the way to the center.

20 Q Right. If you were -- if one were to 10:20:08
21 continue to extend the blade after it reaches --

22 Actually, let's -- let's do this. Let's
23 go ahead and let's take a break --

24 A All right.

25 MR. R. CHEN: -- a five-minute break. 10:20:34

1 with radii -- I mean, you know, the blades -- the 10:30:53
2 blades are three-dimensional, right? So we're
3 talking about a view from the top, a projection onto
4 two dimensions, okay, and if the blade -- you know,
5 if you -- if you draw a -- if you imagine a radius, 10:31:07
6 you know, aligned -- drawn from the center outward
7 to infinity, okay, but starting at the center of
8 rotation, if -- if the blade anywhere -- is
9 anywhere -- if the blade -- if a blade can be
10 aligned entirely over a portion of that -- you know, 10:31:34
11 of one of those radius lines, then it's a radial
12 blade. If it deviates anywhere from that along its
13 length, it is no longer radial.

14 Q Is the term "curved blades" broader or
15 narrower than the term "nonradial blades"? 10:32:01

16 A Well, it is a form of nonradial blade.
17 Certainly, you can't be curved and be radial at the
18 same time. So it would be a -- I mean, it's a
19 subset of the class of nonradial blades, a curved
20 blade would be. 10:32:38

21 Q So the terms "curved blades" and
22 "nonradial blades" do not have the same scope,
23 correct?

24 MS. BHATTACHARYYA: Objection. Vague.
25 Calls for a legal conclusion. 10:32:57

1 THE WITNESS: A curve, to me, implies that 10:33:11
2 there is, you know, some nonlinearity to the shape
3 of the blade so that it, you know, has an arc to it.

4 So they're not identical terms, no.

5 MR. R. CHEN: Okay. Let me introduce an 10:33:36
6 exhibit that is previously marked as Exhibit 163.

7 (Exhibit 163 was introduced.)

8 BY MR. R. CHEN:

9 Q So, Dr. Tuckerman, do you see in the
10 Marked Exhibits folder Exhibit 163? 10:34:26

11 A I do.

12 Q Okay.

13 A Give me just a moment to download it so I
14 can put it in its own window.

15 Q Sure. Yeah. No. Please go ahead and do 10:34:38
16 that, and while you're doing that, Exhibit 163, for
17 the record, is US Patent No. 8,240,362, and the
18 specific exhibit has Bates Nos. ASE-CLT00008003 to
19 -8029.

20 And, Dr. Tuckerman, after you've 10:35:20
21 downloaded it, if I could ask you to go to claim 17
22 at the very end of this exhibit.

23 A Okay.

24 Q I'd like you to take a look at the claim
25 language. Let me know when you're -- when you're at 10:35:39

1 claim 17, and I'll point to -- point you to the 10:35:41
2 particular limitation.

3 A Yeah. Let me -- let me just read the
4 whole claim, though. Do you want to tell me which
5 limitation you're going to focus on? 10:36:06

6 Q Yeah. Go ahead and look at the entire
7 claim, and the limitation that I'm going to ask you
8 about is a pump including a motor and an impeller
9 having curved blades, and, specifically, I'm going
10 to focus on the language: an impeller having curved 10:36:19
11 blades.

12 A Okay. So that's in the second-to-last
13 clause?

14 Q That's correct, yep.

15 A Okay. All right. So let me just read 10:36:31
16 through the whole claim so I have context.

17 (Pause.)

18 A All right.

19 Q Okay. The claim language requires that
20 the blades of the impellers have to be curved, 10:38:59
21 correct?

22 A Yes, that is how I read it.

23 Q And the adjective "curved" modifies the
24 noun "blades," correct?

25 A Yes. 10:39:13

1 you had used Dr. Stein's simulation results. So at 18:26:33
2 that time, you were not shown your report. So I'm
3 going to show your report and direct you to that
4 paragraph so that if -- if there was any answer that
5 you wanted to give in the context of your report, 18:26:50
6 you can do that.

7 Your report, which is the infringement
8 report for the Asetek patents, is Exhibit 291.

9 Do you have that handy?

10 A I do. 18:27:06

11 Q Let me direct you to paragraph 290 of
12 Exhibit 291.

13 A Okay.

14 Q Go ahead and read paragraph 290 of -- you
15 can -- you can read it silently. When you are done, 18:27:31
16 you'll let me know, and I will ask you some
17 questions.

18 A Okay.

19 (Pause.)

20 A I've read that paragraph. 18:28:57

21 Q Okay. Starting in the second sentence in
22 paragraph 290 of Exhibit 291, you say that "Although
23 the blades in the impeller in the H100i Liquid
24 Cooler are not literally curved, they are offset and
25 swept back compared with radial blades (which are 18:29:24

1 traditionally understood to be what comprise a 18:29:27
2 'straight-blade impeller'). As a result, the
3 impeller in the H100i Liquid Cooler (hereinafter the
4 'CoolIT impeller') is functionally equivalent to an
5 impeller with backward-curved blades, and thus the 18:29:44
6 H1" -- "H100i Liquid Cooler (and the other accused
7 CoolIT/Corsair products) infringe claim 17 under the
8 doctrine of equivalents."

9 Do you see that?

10 A Yes. 18:30:05

11 Q Is that opinion independent of Dr. Stein's
12 simulation results?

13 MR. R. CHEN: Objection. Leading.
14 Outside the scope of my examination.

15 THE WITNESS: Well, my knowledge of pump 18:30:31
16 fluid mechanics is that the sweep angle at the exit
17 is primarily the determinant of -- the sweep angle,
18 as it intercepts the circumference of -- of the
19 volute, is primarily the determinant of how the pump
20 performs and what the pump curve looks like. 18:30:56

21 And so my expectation was that a curved
22 blade -- they -- in particular, these are
23 backward-swept blades. We're talking about both --
24 both the curved blade that Dr. Stein simulated and
25 the CoolIT linear but not radial blades. Both of 18:31:23

those have a -- an exit angle that is not perpendicular to -- to the circumference. It's not a radial exit angle. It's -- it's -- it has a sweep back. And so because that sweep back angle at the exit is the primary determinant of how the pump behaves, I expected that there would be similar performance. I thought Dr. Stein's data was supportive of that.

9 So I would say that gave additional
10 confidence, but I -- it would have been my 18:32:11
11 expectation to -- that this result would have been
12 true, that the performance would be similar even
13 without the simulations.

14 BY MS. BHATTACHARYYA:

15 Q And just so I'm clear, you are saying that 18:32:29
16 the performance of CoolIT's impeller would be --
17 strike that.

18 Would it be fair to say that your
19 expectation was, even before seeing the simulation
20 results, that CoolIT's impeller would behave like a 18:32:49
21 backward-curved impeller?

22 MR. R. CHEN: Objection. Leading.

23 THE WITNESS: That was my expectation
24 prior to the simulation.

25 //

1 BY MS. BHATTACHARYYA: 18:33:08

2 Q And does Dr. Stein's simulation support
3 that -- support your opinion or expectation that
4 CoolIT's impeller behaved like a backward-curved
5 impeller? 18:33:26

6 MR. R. CHEN: Objection. Leading.

7 THE WITNESS: It did -- it did support it,
8 yes.

9 BY MS. BHATTACHARYYA:

10 Q And you said that the sweep angle at the 18:33:40
11 exit is the primary determinant of how pump
12 impellers behave.

13 Did I get that right?

14 MR. R. CHEN: Objection. Leading.

15 THE WITNESS: It is -- it is a -- it's the 18:33:58
16 most important factor, I would say, yes.

17 BY MS. BHATTACHARYYA:

18 Q And is the sweep angle at the exit of
19 CoolIT's impeller blades the same as you would see
20 with a backward-curved impeller blade? 18:34:27

21 MR. R. CHEN: Objection. Leading.

22 THE WITNESS: Well, you know, there's a
23 variety of amounts of sweep that you can have in a
24 design. So all I can really say is -- is that I
25 would expect that a curved blade that has a similar 18:34:53

1 sweep angle at the exit would behave comparably to 18:35:04
2 the -- you know, the linear nonradial blades with --
3 with the same amount of sweep.

4 BY MS. BHATTACHARYYA:

5 Q And by "linear nonradial blades," are you 18:35:18
6 referring to CoolIT's impeller blades?

7 MR. R. CHEN: Objection. Leading.

8 THE WITNESS: Yes. That's what I'm
9 referring to in this case, yes.

10 BY MS. BHATTACHARYYA: 18:35:31

11 Q Would you agree that the sweep angles of
12 CoolIT's impeller blades are different from what you
13 would expect to see from straight radial blades?

14 MR. R. CHEN: Objection. Leading.

15 Outside the scope of the examination. 18:35:51

16 THE WITNESS: Well, the sweep -- the sweep
17 angles of the CoolIT are not 90 degrees from the
18 circumference, so they're manifestly not radial.

19 BY MS. BHATTACHARYYA:

20 Q Let's go to paragraph 289 of Exhibit 291. 18:37:02

21 A Okay.

22 Q Actually, let's go to the recitation of
23 the claim limitation, which is marked as 17F, which
24 is right before paragraph 289. And I will represent
25 to you that the bolded sentence starting with the 18:37:31

1 word "activating," which is right before 18:37:34
2 paragraph 289, recites the limitation from claim 17
3 of the '362 patent.

4 A Okay.

5 Q Can you take a moment to read that 18:37:49
6 limitation?

7 (Pause.)

8 A I've read it.

9 Q Okay. Claim 17 of the '362 patent recites
10 "activating a pump to circulate a cooling liquid 18:38:13
11 through the reservoir and the heat radiator, the
12 pump including a motor and an impeller having curved
13 blades, the impeller being positioned in the
14 reservoir."

15 Do you see that? 18:38:32

16 A Yes.

17 Q Claim 17 does not recite that the shape of
18 the impeller blade is curved or that the impeller
19 blades are curve shaped, right?

20 MR. R. CHEN: Objection. Leading. Calls 18:38:49
21 for a legal conclusion.

22 THE WITNESS: That's right. It says
23 curved blades. It doesn't use the word "shape."

24 BY MS. BHATTACHARYYA:

25 Q Earlier during your cross, counsel for 18:40:15

1 I, DAVID B. TUCKERMAN, Ph.D., do hereby
2 declare under penalty of perjury that I have read
3 the foregoing transcript; that I have made any
4 corrections as appear noted, in ink, initialed by
5 me, or attached hereto; that my testimony as
6 contained herein, as corrected, is true and correct.

7 EXECUTED this _____ day of _____,
8 2022, at _____, _____.
(City) (State)

9
10 _____
DAVID B. TUCKERMAN, Ph.D.

11 VOLUME I
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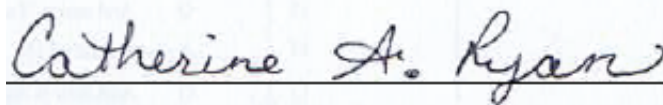
1 I, the undersigned, a Certified Shorthand
2 Reporter of the State of California, do hereby
3 certify:

4 That the foregoing proceedings were taken
5 before me at the time and place herein set forth;
6 that any witnesses in the foregoing proceedings,
7 prior to testifying, were administered an oath; that
8 a record of the proceedings was made by me using
9 machine shorthand which was thereafter transcribed
10 under my direction; that the foregoing is a true
11 record of the testimony given.

12 Further, that if the foregoing pertains to the
13 original transcript of a deposition in a Federal
14 Case, before completion of the proceedings, review
15 of the transcript [X] was [] was not requested.

16 I further certify that I am neither
17 financially interested in the action nor a relative
18 or employee of any attorney or any party to this
19 action.

20 IN WITNESS WHEREOF, I have this date
21 subscribed my name: January 14, 2022.

22
23 
24

Catherine A. Ryan, RMR, CRR

25 CSR No. 8239